REMARKS

The specification was amended on pages 23 and 27 to provide the publication number corresponding to a U.S. provisional application and an Italian patent application. Amendments were made on pages 17 and 22 to correct typographical errors.

The claims were amended to put them in proper format for U.S. filing and to delete multiple dependent claims.

New claims 38-40 were added.

A separate page with a marked-up version of the amended specification and the amended claims entitled "Version with Markings to Show Changes Made" is attached.

Respectfully submitted,

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November 29, 2001

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November 28, 2001
Date of Signature

VERSION WITH MARKINGS TO SHOW CHANGES MADE

On page 23 of the international application, delete the second full paragraph and insert in its place:

Further alumoxanes suitable as activating agents in the process of the present invention are alkylhaloaluminoxanes, as described in WO 00/22007 [US provisional application no. 60/104181], and in particular 1,3-dichloro-1,3-diethyldialuminoxane $[EtAlCl]_2O$ and 1,3-dichloro-1,3-diisobutylaluminoxane $[iBuAlCl]_2O$.

On page 27, delete the fifth paragraph and insert in its place:

According to a further embodiment of the process of the invention, the first polymerization step (I) comprises a step (i) of homopolymerization of propylene or of copolymerization of propylene with another α-olefin to form a crystalline polypropylene component and a step (ii) of copolymerization of ethylene with one or more α-olefins, optionally in the presence of a diene, to form a low-[crystalline] crystallinity or non-crystalline ethylene/α-olefin copolymer component, said steps (i) and (ii) being carried out in an arbitrary order, so as to form a propylene block copolymer product, for instance as described in [the Italian patent application M198-A-001906] WO 00/11057. In the second polymerization stage (III), [it is produced] amorphous polyethylene or block polyethylene containing blocks of amorphous and crystalline polyethylene, or LLDPE, are produced.

On page 17, delete the second paragraph and insert in its place:

The [substituent] substituents R^1 are preferably aryl groups, more preferably substituted in the 2 and 6 positions; according to preferred embodiments of the invention, R1 is selected from the group consisting of phenyl, 2,6-dimethyl-phenyl, 2,6-diisopropyl-phenyl and [2,4,6-timenthyl-phenyl] 2,4,6-trimethyl-phenyl.

On page 22, delete paragraph 4 and insert in its place:

Examples of alumoxanes suitable as activating cocatalysts in the [catalysts] catalyst system according to the present invention are methylalumoxane (MAO), 2,4,4-trimethyl-

pentylalumoxane (TIOAO), 2-methyl-pentylalumoxane and [2,3-dimenthyl-butylalumoxane] 2,3-dimethyl-butylalumoxane. Mixtures of different alumoxanes can also be used.

In the Claims

Please enter the following amended claims.

1. (Amended) A multi-stage process for the polymerization of olefins comprising:

(I) a first polymerization stage, wherein one or more olefins of the formula CH_2=CHR, wherein R is selected from the group consisting of hydrogen, [or] a linear or branched, saturated or unsaturated C_1-C_{10} alkyl, a cycloalkyl [or] and an aryl radical, are polymerized in one or more reactors, in the presence of a catalyst comprising the product of the reaction between an alkyl-Al compound and a solid component comprising at least one compound of a transition metal M^I chosen [between] from Ti and V, and not containing M^I-π bonds, and a halide of Mg, in order to produce an olefinic polymer having porosity, expressed as the percentage of voids, greater than 5%;

(II) a treatment stage, wherein the product obtained in said first polymerization stage (I) is, in any order [whatever]:

(c) optionally contacted with a compound capable of deactivating the catalyst used in stage (I); and

(d) contacted with a late transition metal complex, optionally in the presence of a suitable activating agent; and

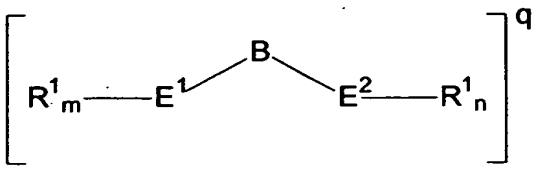
(III) a second polymerization stage, wherein one or more olefinic monomers are polymerized in one or more reactors, in the presence of the product obtained from stage (II).

10. (Amended) The multi-stage process according to claim 1 wherein, in the treatment stage (II)(b), said late transition metal complex has the formula (I) or (II):

$LMX_pX'_s$ (I) LMA (II)

wherein M is a metal belonging to Group 8, 9, 10 or 11 of the Periodic Table;

L is a bidentate or tridentate ligand of the formula (III):



(III)

wherein:

B is a C_1-C_{50} bridging group linking E^1 and E^2, optionally containing one or more atoms belonging to Groups 13-17 of the Periodic Table;

E^1 and E^2, the same or different from each other, are elements belonging to Group 15 or 16 of the Periodic Table and are bonded to said metal M;

the substituents R^1, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_1-C_{20} [alkyliden] alkylidene, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table of the Elements [(such as B, Al, Si, Ge, N, P, O, S, F and Cl atoms)]; or two R^1 substituents attached to the same atom E^1 or E^2 form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms;

m and n are independently 0, 1 or 2, depending on the valence of E^1 and E^2, so as to satisfy the valence number of E^1 and E^2; q is the charge of the bidentate or tridentate ligand so that the oxidation state of $MX_pX'_s$ or MA is satisfied, and the compound (I) or (II) is overall neutral;

X, the same or different from each other, are monoanionic sigma ligands selected from the group consisting of hydrogen, halogen, -R, -OR, $-OSO_2CF_3$, -OCOR, -SR, $-NR_2$ and $-PR_2$ groups, wherein the R substituents are selected from the group consisting of linear or branched, saturated or unsaturated, C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl [or] and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table of the Elements (new IUPAC notation) [, such as B, N, P, Al, Si, Ge, O, S and F atoms]; or two X groups form a metallacycle ring containing from 3 to 20 carbon atoms; [the substituents X are preferably the same;]

X' is a coordinating ligand selected from mono-olefins and neutral Lewis bases

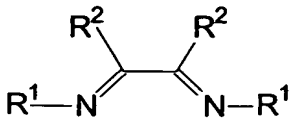
wherein the coordinating atom is N, P, O or S;

p is an integer [ranging] from 0 to 3, so that the final compound (I) or (II) is overall neutral;

s [ranges] is an integer from 0 to 3; and A is a π-allyl or a π-benzyl group.

13. (Amended) The multi-stage process according to claim 10, wherein the substituents R^1 are C_6-C_{20} aryl groups; the substituents X are selected from the group consisting of hydrogen, methyl, phenyl, Cl, Br and I; and p is [1, 2 or] is an integer from 1 to 3.

14. (Amended) The multi-stage process according to [claims 10 and 11] claim 10, wherein said ligand L corresponds to formula (V):



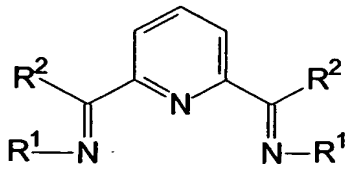
(V)

wherein R^1 [and R^2 have] has the meaning reported in [claims 10 and 11] claim 10; the substituents R^2, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_1-C_{20} alkoxy, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; or two R^2 substituents form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms, or they form a polycyclic ring system, optionally containing one or more Group 13-16 elements; a substituent R^1 and a substituent R^2 may form a substituted or unsubstituted, saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms and optionally containing one or more Group 13-16 element; M belongs to Group 10 of the Periodic Table; X radicals are selected from the group consisting of hydrogen, methyl, Cl, Br [or] and I; p is 2 or 3; and s is 0.

15. (Amended) The multi-stage process according to claim 14, wherein the substituents R^1 are C_6-C_{20} aryl groups, optionally substituted in the 2 and 6 positions with at least one of (a) alkyl groups containing 1 to 20 carbon atoms and[/or] (b) halo groups; the substituents R^2 are selected from the group consisting of hydrogen, methyl, ethyl, n-propyl, i-propyl and benzyl, or the two

substituents R^2 form together an [acenaphtenquinone] acenaphthenequinone group.

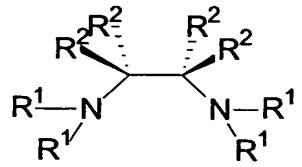
16. (Amended) The multi-stage process according to [claims 10 and 11] claim 10, wherein said ligand L corresponds to formula (VI):



(VI)

wherein the R^1 [and R^2 groups have] has the meaning reported in [claims 10 and 11] claim 10, the substituents R^2, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_1-C_{20} alkoxy, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; or two R^2 substituents form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms, or they form a polycyclic ring system, optionally containing one or more Group 13-16 elements; a substituent R^1 and a substituent R^2 may form a substituted or unsubstituted, saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms and optionally containing one or more Group 13-16 element; the metal M is Fe or Co; the X radicals are [preferably] selected from the group consisting of hydrogen, methyl, Cl, Br [or] and I; p is 2 or 3; and s is 0.

18. (Amended) The multi-stage process according to [claims 10 and 11] claim 10, wherein said ligand L corresponds to formula (VII):

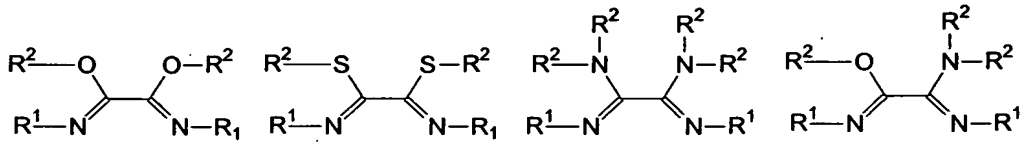


(VII)

wherein R^1 [and R^2 have] has the meaning reported in [claims 10 and 11] claim 1, the substituents R^2, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_1-C_{20} alkoxy, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups

13-17 of the Periodic Table; or two R^2 substituents form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms, or they form a polycyclic ring system, optionally containing one or more Group 13-16 elements; a substituent R^1 and a substituent R^2 may form a substituted or unsubstituted, saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms and optionally containing one or more Group 13-16 element; M belongs to group 10 of the Periodic Table, the X radicals are selected from the group consisting of hydrogen, methyl, Cl, Br [or] and I; p is 2 or 3; and s is 0.

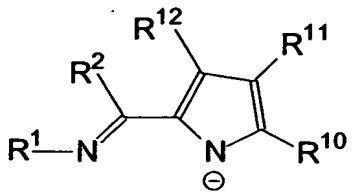
19. (Amended) The multi-stage process according to [claims 10 and 11] claim 10, wherein said ligand L corresponds to one of formulae (VIII)-(XI):



(VIII) (IX) (X) (XI)

wherein R^1 [and R^2 have] has the meaning reported in [claims 10 and 11] claim 10, the substituents R^2, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_1-C_{20} alkoxy, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; or two R^2 substituents form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms, or they form a polycyclic ring system, optionally containing one or more Group 13-16 elements; a substituent R^1 and a substituent R^2 may form a substituted or unsubstituted, saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms and optionally containing one or more Group 13-16 element; M belongs to Group 10 of the Periodic Table, the X radicals are selected from the group consisting of hydrogen, methyl, Cl, Br [or] and I; p is 2 or 3; and s is 0.

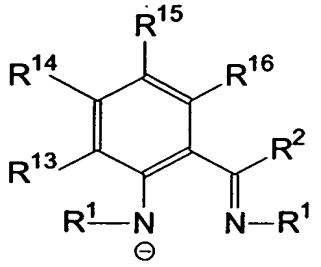
20. (Amended) The multi-stage process according to [claims 10 and 11] claim 10, wherein said ligand L corresponds to formula (XII):



(XII)

wherein R^1 [and R^2 have] has the meaning reported in [claims 10 and 11] claim 10; the substituents R^2, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_1-C_{20} alkoxy, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; or two R^2 substituents form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms, or they form a polycyclic ring system, optionally containing one or more Group 13-16 elements; a substituent R^1 and a substituent R^2 may form a substituted or unsubstituted, saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms and optionally containing one or more Group 13-16 element; R^{10}-R^{12}, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; or two adjacent substituents R^{10}-R^{12} form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 40 carbon atoms; the metal M is [preferably] selected from the group consisting of Fe, Co, Rh, Ni [or] and Pd; the X radicals are selected from the group consisting of hydrogen, methyl, Cl, Br [or] and I; p is 2 or 3; and s is 0.

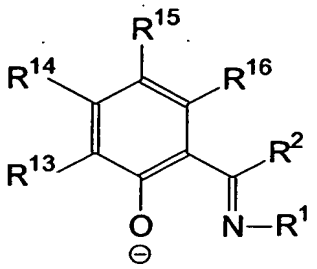
21. (Amended) The multi-stage process according to [claims 10 and 11] claim 10, wherein said ligand L corresponds to formula (XIII):



(XIII)

wherein R^1 [and R^2 have] has the meaning reported in [claims 10 and 11] claim 10; the substituents R^2, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_1-C_{20} alkoxy, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; or two R^2 substituents form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms, or they form a polycyclic ring system, optionally containing one or more Group 13-16 elements; a substituent R^1 and a substituent R^2 may form a substituted or unsubstituted, saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms and optionally containing one or more Group 13-16 element; the substituents R^{14} and R^{16}, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; the substituents R^{13} and R^{15}, the same or different from each other, have the same meaning [of] as substituents R^{14} and R^{16}, optionally forming with an adjacent substituent R^{14} or R^{16} a saturated, unsaturated or aromatic C_4-C_8 ring, or they are electron withdrawing groups; the metal M is selected from the group consisting of Fe, Co, Ni [or] and Pd; the X radicals are selected from the group consisting of hydrogen, methyl, Cl, Br [or] and I; p is 2 or 3; and s is 0.

22. (Amended) The multi-stage process according to [claims 10 and 11] claim 10, wherein said ligand L corresponds to formula (XIV):



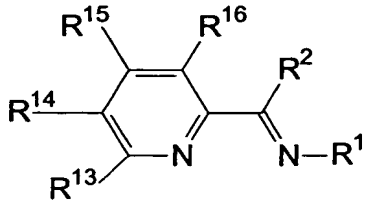
(XIV)

wherein R^1 [and R^2 have] has the meaning reported in [claims 10 and 11] claim 10; the substituents R^2, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_1-C_{20} alkoxy, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; or two R^2 substituents form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms, or they form a polycyclic ring system, optionally containing one or more Group 13-16 elements; a substituent R^1 and a substituent R^2 may form a substituted or unsubstituted, saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms and optionally containing one or more Group 13-16 element; R^{14} and R^{16}, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radical, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; R^{13} and R^{15}, the same or different from each other, have the same meaning [of] as R^{14} and R^{16}, optionally forming with an adjacent R^{14} or R^{16} a saturated, unsaturated or aromatic C_4-C_8 ring, or they are electron withdrawing groups; the metal M belongs to Group 10 of the Periodic Table, the X radicals are selected from the group consisting of hydrogen, methyl, allyl, Cl, Br [or] and I, A is a C_3-C_5 linear allyl, p is 1 and s is 1.

23. (Amended) The multi-stage process according to claim 22 wherein, in said ligand of formula (XIV), R^1 is aryl, substituted in at least one of the 2, 6 and[/or] 4 positions with a substituent selected from the group consisting of halogen, [and]

linear or branched C_1-C_{20} alkyl groups, [or is] and a tertiary C_3-C_6 alkyl group; R^2 is hydrogen or methyl; R^{14} and R^{16} are selected from the group consisting of hydrogen, methyl [or] and methoxy; R^{13} is selected from the group consisting of aryl, substituted in the 2 and 6 positions with branched C_3-C_{30} alkyl groups, a tertiary C_3-C_6 alkyl group, $-NO_2$ and halo; and R^{15} is selected from the group consisting of aryl, tertiary C_3-C_6 alkyl group, $-NO_2$, halo, $-CF_3$, $-SO_3^-$, $-SO_2R$ and $-COO^-$.

24. (Amended) The multi-stage process according to [claims 10 and 11] claim 10, wherein said ligand L corresponds to formula (XV):



(XV)

wherein R^1 [and R^2 have] has the meaning reported in [claims 10 and 11] claim 10; the substituents R^2, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_1-C_{20} alkoxy, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; or two R^2 substituents form a saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms, or they form a polycyclic ring system, optionally containing one or more Group 13-16 elements; a substituent R^1 and a substituent R^2 may form a substituted or unsubstituted, saturated, unsaturated or aromatic C_4-C_8 ring, having from 4 to 20 carbon atoms and optionally containing one or more Group 13-16 elements; the substituents R^{14} and R^{16}, the same or different from each other, are selected from the group consisting of hydrogen, linear or branched, saturated or unsaturated C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl and C_7-C_{20} arylalkyl radicals, optionally containing one or more atoms belonging to groups 13-17 of the Periodic Table; the substituents R^{13} and R^{15}, the same or different from each other,

have the same meaning [of] as substituents R^{14} and R^{16}, optionally forming with an adjacent substituent R^{14} or R^{16} a saturated, unsaturated or aromatic C_4-C_8 ring, or they are electron withdrawing groups; the metal M belongs to Group 10 of the Periodic Table; the X radicals are selected from the group consisting of hydrogen, methyl, Cl, Br [or] and I, p is 2 or 3, and s is 0.

25. (Amended) The multi-stage process according to claim 1 wherein, in the treatment stage (II)(b), said activating agent is at least one of (a) an alumoxane and[/or] (b) a compound able to form an alkylmetal cation.

31. (Amended) A catalyst component for the polymerization of olefins comprising a late transition metal complex supported on a polymeric porous support having a porosity, expressed as percentage of voids, greater than 5%, said catalyst component being [obtainable] obtained by a process comprising:

(I) a polymerization stage, wherein one or more olefins of the formula CH_2=CHR, wherein R is selected from the group consisting of hydrogen, [or] a linear or branched, saturated or unsaturated C_1-C_{10} alkyl, a cycloalkyl [or] and an aryl radical, in the presence of a catalyst comprising the product of the reaction between one or more alkyl-Al compounds and a solid component comprising at least one compound of a transition metal M^I chosen [between] from Ti and V, and not containing M^I-π bonds, and a halide of Mg;

(II) a treatment stage, wherein the product obtained in the polymerization stage (I) is, in any order [whatever]:

(a) optionally contacted with one or more compounds capable of deactivating the catalyst used in step (I); and

(b) contacted with one or more late transition metal complexes, optionally in the presence of a suitable activating agent.

32. (Amended) The catalyst component according to claim 30 [or 31], wherein said late transition metal complex is supported in a quantity [ranging] from $1 \cdot 10^{-7}$ to $1 \cdot 10^{-1}$ mmol per gram of polymeric porous support.

33. (Amended) The catalyst component according to claim 30 [or 31], wherein said polymeric porous support has a porosity greater than 10%.

35. (Amended) A polymer composition [obtainable with] obtained by the process of claim 1, characterized in that:

- in said first polymerization stage a homo or copolymer of propylene is obtained, having a content of propylene units greater than 80[%] wt. % and cold xylene soluble fractions [lesser] less than 40[%] wt. %, said homo or copolymer of propylene consisting of 10-90 [%]wt. % of the total amount of polymer; and
- in said second polymerization stage amorphous polyethylene is produced, having a number of total branching greater than 50 branches/1000 [C] carbon atoms, a density [ranging] from 0.830 [and] to 0.880 g/cm^2, and a Tg value [lesser] less than –30°C.

36. (Amended) A polymer composition [obtainable with] obtained by the process of claim 1, characterized in that:

- in said first polymerization stage polyethylene, polypropylene or propylene/ethylene copolymer is produced, consisting of 10-90 [%]wt. % of the total amount of polymer; and
- in said second polymerization stage block polyethylene is produced, having a melting point [ranging] from 100 to 130°C and a Tg value [lesser] less than – 30°C.

37. (Amended) A polymer composition [obtainable with] obtained by the process of claim 1, characterized in that:

- in said first polymerization stage, a copolymer of ethylene with one or more α-olefins (LLDPE) is obtained, having a content of ethylene units of 80-99[%] wt. %, said copolymer of ethylene consisting of 10-90 [%] wt. % of the total amount of polymer;
- in the second polymerization stage, polyethylene is produced having a number of total branching greater than 5 branches/1000 [C] carbon atoms and a density greater than 0.880 g/cm^3.